O. H. M. S.

W. J. Gerald

Deputy Minister.

LABORATORY

OF THE

INLAND REVENUE DEPARTMENT

OTTAWA, CANADA

BULLETIN No. 156

CONCENTRATED COMMERCIAL FEEDING STUFFS

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OTTAWA, June 8, 1908.

W. J. GERALD, Esq.,
Deputy Minister of Inland Revenue,

SIR,—I beg to hand you a Report of work done upon so-called *Feeding Stuffs* for Cattle. The samples (142 in number) in question were collected, throughout the inspectoral districts of Canada, in December, 1907.

The immediate cause of this collection was a request made by Mr. M. Cumming, Secretary for Agriculture, Nova Scotia, dated August 16, 1907. In your letter of transmission to me, you ask if I am in a position to suggest a definition for Feeding Stuffs. I replied as follows:—

Referring to L. 44789, F. 94334, as regards the question of Cattle Foods, I beg to enclose for your information a memorandum on the subject, and would say:—

(1) That I do not think the defining of any Standard for Cattle Food to be practicable.

(2) The manufacturer must be required to guarantee a value for each brand of food; and we must make him live up to such guarantee.

(3) The case seems to me quite analogous to that of Fertilizers; and I think the best way to meet the requirements will be to enact a Concentrated Food Stuffs Act, on similar lines to those which I have indicated in the case of Fertilizers.

Yours truly,

(sigd) A. McGILL,
Chief Analyst.

CONCENTRATED COMMERCIAL FEEDING STUFFS.

Cattle Foods, of the kind included above, consisted until quite recent years, of wheat bran, shorts, middlings, linseed meal, oil-cake, &c., or mixtures of these: substances which may be characterised as the normal by-products of milling, oil pressing, and similar industries.

The by-products named were obtained by well defined and long established methods of milling, and possessed a fairly constant character. When a farmer bought bran, or shorts or oil-cake, he was fairly well assured of getting an article whose value he could depend upon; and when a manufactured food was made from such materials it, too, possessed a fairly definite value.

With recent improvements in milling, and specially since the extensive manufacture of Cereal Breakfast Foods, there have resulted immense quantities of by-products unknown before, and varying extremely in their value as nutrients. The expansion of the cotton-seed industry, of beet sugar and molasses, of corn-oil manufacture, glucose waste, &c., has brought into existence other classes of by-products, having more or less value as cattle food. These articles are in many cases, not available separately, on account of impalatability or for other reasons. Hence has resulted a great increase in the amount of manufactured or so called "concentrated" stock food on the market.

It is apparent that this condition of things offers a great inducement to unscrupulous manufacturers to use valueless material in compounding their goods. The state of things is, indeed, quite analogous to that obtaining in the fertilizer industry; and the farmer is as much at the mercy of the Feed manufacturer as he is at the mercy of the "Fertilizer" manufacturer.

Connecticut, in 1895, was the first of the United States to recognize the necessity for legislation in regulating cattle foods, of the kind referred to. Since that date, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, Michigan and Wisconsin have enacted feeding stuff laws. The last named State only passed its feeding stuff law in 1901, and in amended form in 1905. I learn that several other States contemplate the immediate enactment of similar laws, as they find that they are made the dumping ground for goods which are refused sale in the States already safeguarded by having legal control of such articles.

The fundamental principles of the legislation above referred to, so far as I have acquaintance with it, are these:—

1. Requiring a license to sell.
2. Payment of a license fee (usually $25 annually) to cover the cost of inspection.
3. The manufacturer must guarantee a minimum percentage of protein and fat in the article he offers for sale.
4. Continuous inspection of the article as found on the market.
5. Publication of analytical results.
6. Penalty for failing to reach the guaranteed values.

In his letter above referred to, Mr. Cumming says:—

"In the course of my travelling through Nova Scotia, and from the correspondence
"we constantly receive, I gather that there is a rather wide-spread suspicion or distrust
"among our farmers as to the genuineness of many of our concentrated feeding stuffs

"for sale in this province. These, as you may know, are largely imported, and bring a "fairly high price."

Bulletin No. 116 of this Laboratory contains the results of analysis of 127 samples of feeds. This examination was made at the suggestion of the Department of Agriculture and the Ontario Agricultural College, and indicates that a suspicion concerning the value of these feeds is not confined to the province of Nova Scotia.

As already stated in the memorandum above quoted, a wide-spread demand for inspection of feeding stuffs has caused the enactment of laws in this regard in many of the States of the American Union.

These laws require that concentrated feeding stuffs offered for sale shall be registered, and their value in protein and fat, distinctly stated upon the package. Most of the laws in question, exempt from license the following classes of feeds :—

1. Hay and straw.
2. Whole seeds or unmixed meals made directly from the entire grains of wheat, rye, barley, oats, Indian corn, buckwheat and broom corn.
3. Wheat bran and wheat middlings not mixed with other substances.
4. Wheat bran and wheat middlings mixed together, but not mixed with other substances.
5. Pure grains ground together, unmixed with other substances.

The Kentucky law (1906) exempts nothing from legal registration and inspection, except hay and straw.

This seems to me the more rational mode of proceeding. Hay and straw are the normal feeds for cattle. They are capable of being accurately valued by direct examination on the part of purchasers. The term "concentrated" applied to a feed, means that it contains nutritive material in a more concentrated form than hay and straw ; and the necessity for inspection lies in the fact that the actual value of these feeds is not capable of being determined by ordinary observation on the part of a purchaser.

Even such well known feeds as bran, middlings, shorts, chop-stuff (moulée), &c., differ very greatly in value among themselves, as may be seen from the tabulated results of analysis, in this report.

A practicable way of meeting the case would seem to be the adoption of certain minimum standards for protein, fat and carbohydrates in bran, middlings and shorts, and such other recognized feeds as possess distinctive names. Perhaps it might be necessary to distinguish wheat bran from oat bran, and so for other grains ; but this is a matter for consideration. In all cases of mixed feeds, the manufacturer should be required to state either or both the composition of the feed, and the value in percentage of protein, fat and carbohydrates, the last term being understood to mean the difference between the sum of moisture, ash, protein, fat and fibre, and the total weight of the material. In this way it will include starch, sugar and pentosans, which last usually constitute about 10 to 15 per cent of the whole, and have probably a less nutritive value than starch and sugar ; although their value is not as yet well known.

If my view of this matter is correct, it will be necessary in the first instance, to define the terms bran, shorts, middlings, chop-feeds, oil-cake, &c., and to insist upon all other feeds being identified by registration numbers, and offered for sale under a guaranteed value in protein, fat and carbohydrates. Of course it would remain open to any miller who preferred doing so, to register a special grade of bran, shorts or chop-feed, and to guarantee for it a minimum [illegible] in nutritive matter ; but the terms bran, shorts, &c., should themselves be so defined as to fix a minimum value for material sold under these names.

Bran (see Table II). This may be a product of the milling of oats, barley, rye or wheat, but usually the last named grain. It differs from straw in that the inner surface of the bran flakes is made up of the nutritious layer of the grain, which is rich in protein and fat.

The following data may be cited for bran :—

—	Samples.	Protein.	Fat.	Fibre.
		p.c.	p.c.	p.c.
Winter Wheat bran—Connecticut, 1905	9	15·90	4·53	8·77
Spring " "	16	14·06	4·70	10·54
Legal Standard, North Carolina, 1907	....	14·50	4·00	9·50
" Kentucky, 1907	....	15·00	4·00	8·00
Inland Revenue Bulletin No. 116, 1906	29	13·47	2·47	11·11
" " No. 156, 1908	27	14·74	3·48	8·69

The above figures indicate Canadian bran as slightly lower than legal bran in such of the United States as have fixed a standard for the article. On the other hand, it is to be remembered that the samples of bran analysed in this laboratory have been sold simply as bran, not necessarily derived from wheat.

Middlings or Shorts (see Tables III and IV). I am unable to distinguish between these terms, which appear to be synonymous. Middlings would seem to be the coarser material, sifted out from the products of a second treatment of the wheat by crushing the coarsely ground material that is sifted out from the bran after the first grinding. If this be correct, middlings should contain less fibre and more protein and carbohydrates than bran.

The following data are available regarding middlings or shorts :—

—	Samples.	Protein.	Fat.	Fibre.
		p.c.	p.c.	p.c.
Middlings—Winter Wheat, Connecticut, 1905	4	16·48	4·52	5·60
" Spring " "	16	16·72	4·84	6·03
" Legal Standard, North Carolina, 1907	....	15·00	4·00	6·00
" " Kentucky, 1906	....	15·75	4·25	6·50
Shorts—Inland Revenue Bulletin No. 116, 1906	[illegible]	16·12	3·87	8·34
Middlings— " " "	2	13·59	2·72	8·33
Shorts— " " No. 156, 1908	29	16·44	4·23	7·33
Middlings— " " "	7	16·09	3·05	9·50

Chop, Chop-feed, Moulée, Provender, &c.—Feed sold under the above names is usually so finely ground that the components are not distinguishable by the eye, and for this reason such feed lends itself to very ready adulteration with chaff, corn-cobs, and other matter of little value.

Typically, I understand that chop-feed is intended to be whole grain, more or less finely ground. The grain used may be oats, wheat, &c., or mixtures of these. It is in its nature of so various character that it is manifestly unfair to the purchaser to offer it without a guarantee of its feeding value. For this reason it would probably be impracticable to attempt to fix a legal limit of value for chop-feeds, as such.

Some idea of the great variations existing in chop-feed may be obtained from examining the list of 28 samples, purchased under this name, and reported herein. (See Table V.) It will be seen that the protein value varies from 20·50 per cent to 6·13 per cent.; the fat from 4·96 to 1·20 per cent. and the carbohydrates from 75·27 to 55·98 per cent.

Oil cake Meal; *Linseed-oil Meal*; *Cottonseed Meal.*—These feeds consist of the ground residues left after the oil has been extracted from linseed or cotton seed. Their feeding value depends upon the high percentage of proteids contained by them, and also upon the residual oil left after treatment in the press.

Since the introduction of the use of a solvent for the extraction of the oil (new process), the residual oil is much reduced in quantity, and many of the United States require that the oil-cake meal shall be defined as "Old Process" or "New Process," when offered for sale.

The following values for these meals are taken from Bulletin 108, Bureau of Chemistry, Washington.

COTTON SEED MEALS.

Source of Samples.	No. of Samples.	Protein.			Fat.		
		Maximum	Minimum.	Average.	Maximum	Minimum.	Average.
		p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Pennsylvania, 1900-1901	8	46·09	42·50	44·40	12·25	8·77	10·10
New England, 1898-1899	205	52·60	40·30	45·40	17·00	6·50	11·20
New York, 1898-1899	14	50·69	41·68	45·64	13·16	7·56	10·82

LINSEED MEALS.

"Old Process" Meal.							
Pennsylvania, 1900-01	24	37·81	29·69	34·10	8·88	3·54	6·04
New England, 1898-99	25	38·90	31·80	35·70	9·60	2·70	7·20
New York, 1898-99	14	38·19	28·69	35·74	8·86	5·72	7·19
"New Process" Meal.							
Pennsylvania, 1900-01	3	34·63	34·00	34·25	2·92	2·19	2·63
New England, 1898-99	31	42·20	39·60	38·20	3·50	1·80	2·40
New York, 1898-99	5	37·56	35·19	36·14	4·79	2·91	3·57

In Table VI, of this report, are given the results of analysis of 27 samples of linseed meal or oil-cake meal. The contents vary as follows:—

Proteids —	Maximum	39·19
	Minimum	19·69
	Average	31·23
Fat —	Maximum	24·14
	Minimum	1·65
	Average	6·89
Carbohydrates	Maximum	54·68
	Minimum	26·99
	Average	42·17

It will be noted that while there is little difference between the protein content of Old and New process meals, the oil content is much lower in new process meal. On account of this fact, and the considerable variation between maximum and minimum values, it is evident that the only just way of putting such feeds on the market is that of guaranty.

I recognize the importance of stating the food value of these articles in as simple terms as possible. For this reason it would be unwise to introduce discrimination between the varying nutritive values of starch, sugar, pentosans, and other substances which I have grouped under the general term carbohydrates. That such differences of value exist there can be no doubt; but not only are they comparatively slight, but they are very imperfectly known.

Fats are usually taken as having 2¼ times the feeding value of starch. This valuation is based on their heat producing (Calorific) equivalent; and is probably not far from the truth, under normal digestive conditions.

If we could place a relative feeding value upon proteids it would then be possible to obtain a single expression for the relative values of feeds. The advantage of having such a simple expression of value is self-evident. Nor is the attempt to use such an expression of value now made for the first time. Both in Germany and in the United States (See Bull. 106, Wisconsin Agr. Exp, Station) efforts have been made to devise a way of stating, in a single term, the values of stock-foods. Proteids, fats and starches have been relatively valued in the ratio 3 : 2 : 1; and many refinements have been attempted, these being based upon considerations of digestibility.

I am inclined to think that the above ratio gives too low a value to proteids; and am further convinced that, in the present state of our knowledge regarding the digestibility and consequent nutritive value of the various proteids and carbohydrates, it is unwise and even misleading to attempt to give great refinement to any simple expression of relative value. Certainly the attempt to make such a value coincide with the trade values of these articles, is to ignore the varying conditions of production and demand. It is easily conceivable that on one farm a given feed may be of greater importance than on another, in the same way that a fertilizer of given composition may have a high value for a particular soil, and a lower value for a soil of a different character.

For the purposes of this report I have used the following relative values:—

	Per unit
Carbohydrates (Starch, Sugar, Pentosans, &c,)	1
Fats	2
Proteids	4

So far as I am able to get information on the subject, these numbers indicate fairly well, the values of the substances named. The numbers must be considered as subject to revision, and to change, on sufficient grounds.

In a general way they may be considered as furnishing a helpful guidance in comparing individual samples with each other. The following statement gives, at a glance, the extreme and mean values of these feeds, in terms of the relative value.

—	Samples.	Relative value.		
		Maximum	Minimum.	Mean.
		p.c.	p.c.	p.c.
Bran—Table II	27	132	113	126
Shorts—Table III.	29	144	116	134
Middlings—Table IV	7	135	123	129
Chop Feeds—Table V	28	147	88	118
Oil Meal—Table VI	27	203	159	185

That the above values approximate the trade values of the feeds, in a general way, appears from the following trade prices, (retail), which have been obtained from Ottawa dealers.

Bran	$1.30 per cwt.
Shorts and Middlings	1.25 to $1.35 per cwt.
Chop-feeds (Provender)	1.60 per cwt.
Linseed Meal	4.00 per cwt.

Chop-feeds, vary so much in value, that they especially call for a guaranty. The proprietary foods, sold under distinctive brand names, should evidently carry a guarantee of value.

In Table VII, I have arranged 24 samples, of miscellaneous character, such as did not permit of their being classified with those included in the preceding tables. Several of these are not to be regarded as foods, in the usual sense, but rather as cattle medicines. Others are condimentary foods. Most of them are proprietary. The examination and discussion of this class of articles will be treated at some future time.

I beg to recommend the publication of this report as Bulletin No. 156.

I have the honour to be, Sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

TABLE I.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

Date of Collection.		Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Moisture.	Ash.	Protein.	Fat.	Fibre.	Carbohydrates, &c., (Difference.)
					Quantity.	Cents.								
1907.									p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
							DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.							
Dec.	5	Cattle Feed.	27393	J. S. Cashew	2 lbs.	5	Jas. Goldie, Guelph, Ont.	Sold as bran	9·04	5·78	15·75	3·26	8·80	57·37
"	6	"	27395	De Wolf & Lamont, Kentville, N.S.	2 "	5	Campbell Co., St. Thomas, Ont.	"	8·75	6·36	14·00	3·45	8·92	58·52
"	6	"	27396	" "	2 "	5	" "	Sold as middlings	5·96	4·22	13·81	3·64	5·90	66·47
"	6	"	27397	W. A. Smith, Kentville, N.S.	2 "	5	The Tillson Co., Tillsonburg, Ont.	Sold as wheat-bran	7·95	6·30	14·06	3·49	8·40	59·80
"	6	"	27398	S. L. Cross, Kentville, N.S.	2 "	5	Western Canada Mills Co., St. Mary's Ont.	Sample taken from bag labelled "feed flour."	8·85	2·32	15·50	3·99	1·68	67·50
"	7	"	27399	R. E. Harris, Wolfville, N.S.	2 "	5	The Ogilvie Flour Mills Co., Montreal.	Labelled "Moulee'. on bag from which sample was taken.	8·50	4·36	15·75	3·42	5·64	62·33
"	10	"	27400	E. D. Moore, Liverpool, N.S.	2 "	10	Vendor	Sold as oats and corn; half and half.	9·16	1·76	10·77	3·39	5·85	69·07
"	16	"	33485	E. W. Walker, Dartmouth, N.S.	2 "	5	Brant Milling Co., Brantford, Ont.	Sold as shorts	9·12	4·66	15·69	3·53	5·28	51·70
"	16	"	33486	Nova Scotia Milling Co., Dartmouth, N.S.	2 "	5	Ogilvie Milling Co., Montreal.	Sold as middlings	8·55	6·08	17·50	2·36	14·40	51·11
"	16	"	33487	Colin McNabb, Dartmouth, N.S.	2 "	5	Unknown	"	8·00	6·06	17·50	2·36	14·40	61·68

DISTRICT OF PRINCE EDWARD ISLAND—T. MOORE, INSPECTOR.

Nov.	29	Oil Meal	31175	Auld Brothers, Charlottetown.	2 lbs.		J. J. Livingston, Ont		7·75	4·92	35·70	1·73	7 28	42·62
„	29	Wheat Middlings	31176	F. L. McNutt, Charlottetown.	2 „	4	Ogilvie Milling Co		6·05	4·50	16·81	2·87	9 68	60·09
„	30	Feed Flour	31177	R. E. Mutch, Charlottetown.	2 „		G. Carters & Sons, St. Mary's Ont.		7·60	2·20	14·50	1·60	5·12	68 98
„	30	Banner Feed	31178	P. E. I. Hay & Produce Co., Charlottetown.	2 „		American Cereal Co.		7·45	2·26	7·69	2·31	9·72	70 57
„	30	Molac	31179	Auld Bros., Charlottetown.	2 „		Quaker Oats Co., Peterboro, Ont.		5·25	5 28	15·38	5·23	7·48	61·38
Dec.	3	Bran	31180	Coffin & Co., Charlottetown.	2 „	5	Myers Milling & Elevator Co., Lestor, Ont.		6·50	5·70	12·25	1·70	9·28	64·57
„	4	Feed Corn	31181	R. T. Holman, Ltd., Summerside.	2 „	5	Geo. Robertson, Summerside.		8 10	1·82	10·94	3·42	5·08	70·64
„	4	Molac	31182	„ „	2 „	4	Unknown		7·20	6·20	9·44	3·36	11·28	62·52
„	5	Molascuit	31183	R. Tuplin & Co., Kensington.	2 „	8	E. P. Crow, Stewiacke, N.S.		10 30	20·40	4·90	2·50	6·56	55·34
„	5	Oil Cake	31184	T. Kennedy, Kensington.	2 „	6	Unknown		7·60	4·96	36·56	2·04	11 64	37·20

DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON INSPECTOR.

Dec.	3	Bran	29594	Wm. Dunlop & Sons, 12 Sydney St., St. John, N.B.	3 lbs.	25	Lake of the Woods Milling Co., Keewatin, Canada.	Taken from 100 lb. bag in store.	9·05	6·50	14·44	1·66	14·24	44 11
„	4	Cracked Corn	29595	Maritime Corn Meal Mill, Hanover St., St. John, N.B.	3 „	10	Maritime Corn Meal Mill, Hanover St., St. John, N.B.	C. M. Stewart, prop., feeding horses, poultry, swine, etc.	9·25	1·36	8·84	1·91	11·00	67·64
„	5	Shorts	29596	C. H. Peters Sons, Ward St., St. John, N.B.	3 „	25	Jno. Campbell, St. Thomas, Ont., Canada.	Grade principally sold to milkmen feeding cows.	9·15	4·10	10·44	4·97	7·12	64·22
„	10	Middlings	29597	Joshua E. Cowan, 99 Main St., St. John, N.B.	3 „	10	Dewitt Bros., Fairville, St. John Co., N.B.	Bag marked Western Canada Flour Mills Co. Middlings.	8·40	4·42	17·94	3·60	9·00	56·64
„	17	Oil Cake	29598	The Sussex Mercantile Co., Ltd., Sussex, N.B.	3 „	15	Linseed Mills, Montreal, P.Q.	On bag, Fine Canada Linseed Mills. Pure linseed cake meal from 100 lb. bag.	7·75	5·20	31·94	2·65	6·68	45·78
„	18	Feeding Meal	29599	The Chas. Fawcett Mfg. Co., Ltd., Moncton, N.B.	3 „	15	Vendors	Feeding meal ground from imported corn largely sold to farmers.	10·30	1·08	8·75	3·58	4·32	71·97
„	20	Middlings	29600	Baird & Peters, Newcastle, N.B.	3 „	20	Ogilvie's Milling Co., Canada.	Bag marked Ogilvie's 100 lb. Middlings.	8·36	4·18	12·94	3·89	6·90	63 73
„	21	Banner Cattle Feed	29601	B. A. Mowatt, Campbellton, N.B.	3 „	15	Quaker Oats Co., Peterboro, Ont.	Bag marked Banner Cattlefood. Vendor said it was cracked corn and oats mixed.	10·16	2·40	9·56	2·44	7·00	68·44
1908.														

TABLE I.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Moisture.	Ash.	Protein.	Fat.	Fibre.	Carbohydrates, &c., (Difference)
				Quantity.	Cents.								
1907.								p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
			DISTRICT OF NEW BRUNSWICK—J. C. FURGUSON, INSPECTOR. *Con.*										
Jan. 4	Cotton Seed Meal	29602	F. H. Everett, Fredericton, N.B.	3 "	15	Humphreys, Godwin & Co., Memphis, Tennessee, U.S.A.	Cow feed, cotton seed meal, "Dixie" brand.	5·55	4·66	39·19	5·17	18·44	36·99
6	Cow Feed	29603	J. M. Tripp, Woodstock, N.B.	3 "	15	Vendors	From wheat, native barley, oats and buckwheat. First 3 equal parts less buckwheat.	10·40	2·72	10·94	1·80	18·16	55·98
			DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.										
Dec. 3	Feeding Stuff, birds.	26344	R. W. Williams, Corner Notre Dame et du Platon.	3 lbs.	30	William Ewing Co., Montreal.		*	*	*			
" 3	Feeding Stuff, bird.	26345	O. Carignan et Fils, Trois Rivières, P.Q.	3 "	30	L. Chaput Fils & Co.		*	*	*			*
" 3	Feeding Stuff, birds.	26346	" "	3 "	30	Hudon & Ursale		*	*	*			*
" 3	Fleur Imperial	26347	" "	2 "	4	Ogilvie Flour Co.		9·00	2·10	15·48	3·08	1·08	69·26
" 3	Middlings	26348	" "	2 "	4	"		7·90	4·16	16·12	2·60	6·24	62·98
" 3	Shorts	26349	" "	2 "	4	"		8·60	4·76	17·58	4·32	5·64	59·10
" 3	Oil Cake	26350	" "	2 "	5	"		7·15	5·30	35·87	5·57	4·92	41·19
" 3	Bran	26351	" "	2 "	8	"		8·35	5·58	1·44	3·65	7·20	64·78
" 4	Shorts	26352	T. O. Gauthier, 33 Rue des Forges.	2 "	4	"		7·90	[illegible]	17·50	4·93	7·72	57·50
" 4	Bran	26353	Bellefeuille & Giroux, 46 Rue des Forges.	2 "	5	"		7·87	5·58	14·87	3·93	6·64	61·11

* Bird seed, not analyzed. Collected by mistake, not cattle food.

DISTRICT OF ST. HYACINTHE J. C. ROULEAU, INSPECTOR

Nov.	29	Anglo Saxon Stock Food.	27901	J. M. Palardy, St. Hyacinthe.	1 box	25	Nat. Drug Co., Montreal.	Sold as a fattener	6 65	11 76	14 00	9 63	13 00	44 96
"	29	Herbageum	27902	M. Bousquet, St. Hyacinthe.	2 lbs	30	Beaver Mfg. Co., Galt, Ont.	"	6 75	13 30	22 50	6·41	6 78	44 26
Dec.	2	Wheat Bran	27903	Jos. Chartier, St. Jean	1 "	2	Chas. R. Cousins Co., St. Jean.		8 35	6 00	15·31	3 21	6 88	60 25
"	3	Shorts	27904	J. A. Lequin, Farnham	1½ "		Ogilvie Milling Co., Montreal.	From a 100-lb. sack	8 70	4 92	18 38	3 54	7 08	57 38
"	5	Moulee de Ble	27905	" "	1½ "		" "	"	8 75	4 20	20 50	3·53	5 52	57 50
"	4	"Victor" Stock Food.	27906	C. E. Roy, Megantic	1¼ "		The American Cereal Co., Peterboro.	Sack marked corn and oat feed.	5 80	3 40	7 50	5 52	12 92	63 86
"	5	Oil Cake Meal Ground.	27907	C. O. Genest & fils, Sherbrooke.	1½ "		J. J. Livingston, Baden, Ont., and Montreal, Que.	Sack marked pure oil cake meal.	6 10	5 54	34 38	4 66	7 88	41 44
"	5	Shorts	27908	A. McKenzie, Richmond.	1½ "		The Renfrew Milling Co., Renfrew Ont.	Sack marked the Renfrew Roller Mills Co	6 65	4 58	18 1	4 47	8 84	57 27
"	6	Moulee "Schumacher Brand."	27909	E. Brunneau, Victoriaville.	1½ "		The Quaker Oats, Peterboro, Ont.	From 100-lb. sack, No. 27909.	7 30	3 36	11 58	2 58	10 08	65 10
"	12	Oil Cake Meal Ground.	27934	E. Lafontaine, Drummondville.	3 "	10	Wm. Ewing & Co., Montreal.	No. 27907	8 65	5 22	37 88	1 83	7 72	38 70

DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.

Dec.	4	Shorts	31529	S. Thibault & Cie, Montreal.	2 lbs	5	Brunneau, Currie & Co., Montreal.		7·60	4 26	16 81	5 60	6·80	58 93
"	4	Moulee	31530	" "	2 "	5	Mfg. at L'Epiphanie, Que.		8 30	2 90	20·41	2 26	8 88	57·25
"	4	Bran	31531	" "	2 "	5	Ogilvie Milling Co., Montreal.		8 20	5 64	16·25	4 04	9 36	56 51
"	4	Linseed Meal	31532	James Scott & Co., Montreal.	2 "		Dom. Linseed Oil Co., Montreal.		2 62	3 48	24 06	9 62	9 08	51 14
"	4	Oil Cake Meal	31533	" "	2 "		" "		7 05	5 40	35 87	5 47	5 96	40 25
"	4	Banner Feed	31534	" "	2 "		American Cereal Co		7 70	3 14	10 06	4 86	7 08	67·16
"	9	Bran	31535	McDonald & Robb, Valleyfield, P.Q.	2 "	5	Vendors		7 50	5·50	14 69	4 10	7 28	60 93
"	9	Oil Cake Meal	31536	" "	2 "	5	Dom. Linseed Oil Co		6·80	5 18	33 94	5·84	6 20	44 04
"	9	Shorts	31537	" "	2 "	5	Vendors		7 65	3·84	16 81	5 31	7 64	58 75
"	9	Mixed Provender	31538	" "	2 "	5	"		8 40	2 02	13 31	1 96	3 12	71·19

TABLE I.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

Date of Collection.		Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Moisture.	Ash.	Protein.	Fat.	Fibre.	Carbo-hydrates, &c., (Difference).
1907.									p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
							DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR							
Dec.	9	International Stock Feed.	34105	J. A. Bennett, Ottawa	2 lbs.	40	International Stock Food Co., Toronto, Ont. and Minneapolis, Minn.	Marked on pail, Every pail 25 lbs., $3.75, saves $7.00 worth of corn and oats.	6·70	14·74	12·44	3·38	8·16	54·58
"	9	Herbageum Poultry Food.	34106	" "	2 "	30	Beaver Mfg. Co., Galt, Ont.	Bag marked, Herbageum is unsurpassed for all kinds of poultry. Superior to all else for fattening and for production of eggs.	6·70	15·26	22·31	6·22	7·80	41·71
"	10	Oil Cake	34107	R. Russell, Ottawa	2 "	10	J. & J. Livingston, Baden and Montreal.	....	7·75	5·30	35·63	6·45	6·28	38·59
"	10	The Canada Stock Food.	34108	W. A. Blyth, Ottawa	2 "	50	The Canada Stock Food Co., Brockville, Ont.	Marked, Medicated food. Prepared from barks, roots and seeds and herbs. Mfg. by the Canada Stock Food Co., Brockville.	7·20	11·40	16·13	7·12	9·04	49·11
"	10	Shorts	34109	"	2 "	5	Ogilvie Flour Mills Co., Montreal and Winnipeg.	....	8·40	4·30	17·00	3·08	7·68	59·54
	10	Banner Cattle Food	34110	Millar & Co., Ottawa	2 "	5	American Cereal Co., Peterboro, Ont.	....	8·20	2·34	8·69	2·60	9·32	68·85
"	10	Schumacher Stock Food.	34111		2 "	5	Quaker Oats Co., Peterboro, Ont.	Marked, Schumacher Stock Feed is not sold in bulk. None genuine unless in sacks. Analysis—Crude protein 10 to 12%, crude fat 4 to 5%.	8·80	3·22	10·74	4·96	9·16	63·12

"	14 Bran	34112	Allen & Co., Ottawa	2 "	10	Sutcliffe Mur Co., Moosomin.		9 00	5 24	14 69	2 80	13 64	54 63
"	14 Provender	34113	H. Pullan, Ottawa	2 "	10	The Ottawa Milling Co.		8 00	4 00	7 87	1 60	10 16	68 37
"	14 Shorts	34114	L. O. Joly, Ottawa	2 "	5	Not known		7 65	4 64	16 22	5 35	5 9[illegible]	60 18

DISTRICT OF KINGSTON J. HOGAN, INSPECTOR.

Dec.	2 Bran	32487	J. A. Farlane, Brock St., Kingston.	2 lbs.	5	Quaker Oats Co., Peterboro, Ont.		7 60	6 18	15·69	4 24	7 36	58 93
"	2 Oil Cake	32488	" "	3 "	10	N. C. Polson Co., Kingston.		6 85	5 30	38 75	5 71	6 04	37 35
"	2 Shorts	32489	" "	3 "	5	Lake Huron Milling Co., Goderich.		7·55	4 00	17 31	5 41	5 92	59 71
"	2 Bran	32490	W. J. Peters, Brock St., Kingston.	3 "	10	Lake of the Woods Milling Co.		8 25	6 20	15 25	5 64	6·26	58 40
"	2 Oil Cake	32491	" "	3 "	15	Dominion Oil Co., Baden		6 25	5 40	35 71	87	5·12	41 65
"	2 Shorts	32492	" "	3 "	10	Lake of the Woods Milling Co.		6 95	4·38	18 56	5 45	6 22	58 44
"	2 Bran	32493	D. Hutchison, Market St., Kingston.	3 "	10	Seaforth Milling Co		7 90	5 58	14 50	4 66	7 48	59 88
"	2 Shorts	32494	A. Hutchison, Market St., Kingston.	3 "	10	" "		7·70	3 82	15 50	5 02	7 28	60 68
"	3 Shorts	32495	H. E. Fairfield, Front St., Belleville.	3 "	5	Wasts Ca MillingCo.		7 95	3 96	17 25	5 53	6 92	58 37
"	3 Bran	32496	" "	2 "	10	Quaker Oats Co., Peterboro.		8 70	5 60	15 48	4 02	6 92	59 28

DISTRICT OF TORONTO H. J. DAGER, INSPECTOR.

Dec.	9 Ground Oil Cake	33361	A. V. Charlebois & Son, Penetanguishene.	2 lbs.	6	Wm. Rennie, Seed Merchant, Toronto.	Sample taken from large sack and not labelled.	7 15	5 50	36 38	1 65	9 52	39 80
"	10 Bibby's Cream Equivalent.	33362	Gould Bros., Midland	2 "	10	J. Bibby & Sons, Liverpool.	Labelled Bibby's Cream Equivalent, mixed with separated or skimmed milk, for raising calves.	6 20	5 46	14 25	7 08	7 16	59 85
"	11 Ground Cotton Seed Meal.	33363	Geo. Vick & Sons, Orillia	2 "	10	Vendor manufacturer.		3 50	3 28	23 37	24 14	7·04	38 67
"	12 Linseed Meal	33364	James Cheeseman, Barrie	2 "	10	L. L. Livingston, Baden.	Sack labelled pure linseed meal.	3 15	3 88	26 06	14 57	5 69	46·74
"	13 Ground Corn	33365	Geo. Gibb, Collingwood	2 "	10	Cameron & Shipley, Collingwood.		9 50	1 38	8 31	1 82	3 72	75·27
"	13 Stock Food Stuff	33366	McConnell Bros., Meaford.	1 pkg.	50	Dr. Scott Co., London	Labelled Condensed Stock Dietic Compound.	7 95	14 68	19 88	1 61	5·72	60 16

TABLE I. CONCENTRATED COMMERCIAL FEEDING STUFFS.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report	Moisture.	Ash.	Protein.	Fat.	Fibre.	Carbohydrates, &c., (Difference).
				Quantity.	Cents.								
1907.								p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
			DISTRICT OF TORONTO H. J. DAGER, INSPECTOR. *Con.*										
Dec. 17	Calf Meal	33367	John Johnson, Orangeville.	2 lbs.	10	W. J. Barwell, Waukegan	Labelled a perfect milk substitute. Called Blackford's Calf Meal	7 64	4 58	26 25	2 21	4 50	54 82
19	Linseed Meal	33368	Thos. A. Kellman, Brampton.	2 „	10	Vendor	....	4 68	1 80	21 50	9 87	7 50	54 65
19	Wheat Bran	33369	Thos. L. Taylor, Brampton.	2 „	5	Norval Flouring Mills, Norval.		9 76	6 16	15 12	2 39	13 25	53 32
19	Shorts	33370	D. A. Brooks, Georgetown.	2 „	5	Henry Bracken, Boston Mills.		9 08	3 40	15 21	3 42	8 60	60 29
			DISTRICT OF LONDON F. KIDD, INSPECTOR, AND H. J. DAGER, ACTING INSPECTOR.										
Nov. 29	Food Stuff.	30440	W. E. Kerslake, Seaforth	2 lbs.	10	Wm. Rennie, Toronto	Sold to vendor as Bibby's Cream Food	6 20	5 38	14 25	6 16	5 04	62 97
„ 30	Herbageum	30447	Vidans & Co., Goderich.	2 „	30	Beaver Mfg., Galt, Ont		7 30	16 50	23 00	5 82	8 48	38 90
Dec. 2	Stock Food	30453	John Byers, Stratford.	1½ „	15	Dr. Hess, Ashland, Ohio.	Taken from bag marked Dr Hess, Ashland, Ohio.	6 25	32 84	10 94	4 47	8 60	36 90
2	„	30454	Brickman & Morrison, Stratford.	1½ „	15	Pratt's Stock Food Co.,	Called "Pratt's Food Regulator."	6 00	10 50	15·31	4 80	6 72	56 67
4	Oil Cake.	30457	D. Cook	2 „	10	Gorman & Eckart, Lon- Ont.	....	7 55	5 26	35 00	2 69	12 04	37 46
5	Food Stuff.	30459	J. & H. Fields, Mitchell.	1½ „	10	Twin City Stock Food Co., Berlin	....	7 50	7 82	18 00	1 41	3 44	61 74
„ 20	Feeding Stuff	35013	J. L. Eidt	2 „	15	J. L. Eidt, Berlin.	Called Herb Food, and mfg. by vendor for milk and flesh food.	6 50	13 06	19 06	4 10	8 72	48 56

Dec.	23		35014	Patrick Bros., Woodstock	2 "	8	Vendors	Linseed meal. Sample was taken from sack in store.	4 00	3 82	23 63	15 12	6 76	46 67
"	24	. . . . .	35015	C. S. Coch, Windsor	3 "	25	W. A. Freeman & Co., Hamilton.	Oil Cake Meal.	4 00	6·04	24 06	11 08	7 88	49 94
"	26	. . . . .	35016	Jos. D. Soutor, 5th St., opposite County Bldgs.	2 "	10	Freeman Fertilizer Co., Hamilton.	Sample taken from sack branded Meat Meal, with trade mark "Best on Earth."	4·80	27 48	48 44	7 88	8 44	2 96
"	27	" . . .	35017	R. Hookway & Son, London.	2 "	5	Hunt Bros., City Mills, London.	Wheat bran.	8·25	5·80	15 56	3 71	7 48	59 30
"	27	. . . . .	35018	Chas. Cowan, London	2 "	5	Wallaceburg Beet Sugar Co., Wallaceburg.	Nat. Stock Food, made from beet pulp dried, and other materials.	6 80	6·32	11 81	3 04	9 60	62 33

DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR.

Dec.	10	Shorts	25663	Rae & Co	2 lbs.	5	Western Milling Co., Brandon, Man.	. . . .	6 55	4·10	17·06	3 37	7 60	61 32
"	12	Poultry Food	25671	Carnefac Stock Food Co., Winnipeg.	2 "	25	Vendors. .	. . . .	6 90	9 20	17 50	38	52 76	7 26
"	12	Bran.	25672	" "	2 "	10	Winnipeg Flour Mills.	. . . .	7·90	6·24	14 00	4 34	8 48	59 04
"	12	Shorts.	25673	" "	2 "	5	" "	. . . .	8 00	2 48	16 38	5·28	7 72	60 14
"	12	Bran.	25674	Wilton Bros., Winnipeg	2 "	5	Western Milling Co., St. Boniface, Man.	. . . .	7·40	6 60	14 94	4·72	7 88	58 46
"	12	Shorts.	25675	" " . . .	2 "	5	" "	. . . .	7 00	4 62	17·25	5·52	6 44	59 17
"	12	Shorts.	25676	Olafson & Sveinsson, Winnipeg,	2 "	No chg.	Winnipeg Flour Mills. .	. . . .	7 55	4 18	15 31	4 57	5 36	63 03
"	12	Bran.	25677	" "	2 "	"	" "	. . . .	8·00	6 10	14·94	3 60	10 04	57 32
"	12	Oil Cake	25678	" " . . .	2 "	"	" "	. . . .	5 90	5 84	31·63	4 58	7 84	44 21
"	12	Ground Linseed. . .	25679	" " . .	2 "	"	" "	. . . .	4 65	3 94	19·69	14 59	7 16	49 97

1908.

DISTRICT OF CALGARY R. W. FLETCHER, INSPECTOR.

Jan.	9	Chop Barley	28856	J. S. Love, Calgary. . .	2 lbs.	5	Vendor . . .	. . . .	9·00	3 90	11 37	1 20	9 88	64 65
"	9	Chop Oats	28857	" " . . .	2 "	5	"	. . . .	8 55	3·16	9 62	2 49	9·56	66 62
"	9	Shorts.	28858	" "	2 "	5	"	. . . .	9 10	3 20	18 68	5 22	10 24	53 56
"	9	Bran.	28859	C. Wallace, Calgary. . . .	2 "	5	Calgary Milling Co., Calgary.	. . . .	9·25	4·70	13 56	3 39	7 80	61·30
"	9	Shorts.	28860	" " . . .	2 "	5	" "	. . . .	8 80	2 96	14 79	3 64	6 32	63 49

TABLE I.—CONCENTRATED COMMERCIAL FEED STUFFS.

Date of Collection.		Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Moisture.	Ash.	Protein.	Fat.	Fibre.	Carbohydrates, &c., (Difference.)
					Quantity.	Cents.								
1907.									p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
							DISTEICT OF CALGARY R W FLETCHER, INSPECTOR.—*Con.*							
Jan.	13	Shorts..	28861	D. T. C. Williamson, Medicine Hat.	2 „	5	Medicine Hat Milling Co., Medicine Hat.		9·70	3·14	18·32	3·18	8·88	56·78
„	14	Shorts..	28862	Hudson Bay Co., Lethbridge.	2 „	5	Raymond Milling Co., Raymond.		9·30	2·98	16·88	3·10	8·00	59·74
„	14	Bran.	28863	„ „	2 „	5	„ „		7·15	5·28	15·31	4·85	10·12	57·29
„	18	Shorts..	28864	Tuttle & Dauphin, Strathcona.	2 „	5	Campbell & Otherwell, Edmonton.		8·25	4·08	14·19	4·67	7·84	60·97
„	18	Bran.	28865	„ „	2	5	Ritchie Milling Co., Strathcona.		7·75	4·10	14·06	4·13	7·08	62·88
							DISTRICT OF VANCOUVER—E. B. PARKINSON, INSPECTOR.							
Dec	13	Chop Feed.	32177	Brackman & Ker Milling Co., Vancouver.	3 lbs	5	Vendors		9·00	3·32	8·66	3·15	7·92	67·95
„	13	Oil Cake Meal	32178	„ „	3 „	10	„		6·80	5·64	36·22	4·88	9·80	36·66
„	13	Bran	32179	„ „	3 „	5	Ogilvie Milling Co., Winnipeg, Man.		9·20	5·10	17·41	3·36	8·68	56·25
„	13	Shorts	32180	„ „	3 „	5	Sprague Roller Mills, Sprague, Wash.		8·80	3·64	17·41	4·40	6·60	59·15
„	16	Bran	32181	F. Allen, Vancouver	3 „	5	Ogilvie Milling Co., Winnipeg, Man.		9·65	5·72	14·87	2·87	8·64	58·25
„	16	Shorts	32182	„	3 „	5	„		9·30	4·54	16·19	4·86	6·64	58·47
„	16	Corn Chop	32183	Fox Bros., Quebec	3 „	10	Vendors		9·80	2·36	10·25	3·08	3·40	71·11

"	16	Oat Chop	32184	W. Erichsen & Son, Vancouver.	3	"	10	Vendors	10 00	2 30	10 00	2 20	8 72	66 72
"	16	Wheat Chop	32185	The Vancouver Milling & Grain Co., Vancouver B.C.	3	"	5	"	9 50	1 84	14 26	1·90	3 38	69 12
"	16	Chop	32186	"	3	"	5	"	9 00	2 66	9 71	3 84	12 20	62 59

DISTRICT OF VICTORIA—D. O. SULLIVAN, INSPECTOR.

1908.														
Jan	4	Oil Cake	34805	Geo. S. Pearson & Co., Nanaimo, B.C.	2	lbs.	5	W. Rennie, Toronto	6 95	5 92	35 81	5 53	9 28	36 51
"	17	Shorts	34807	Sylvester Feed Co., Victoria.	2	"	5	Moose Jaw Mills, Moose Jaw.	8 15	2 82	15 81	2·65	8 30	62 21
"	17	Bran	34808	"	2	"	5	Columbia Flour Mills, Enderby, B.C.	8 35	4 44	15 75	1·83	7 28	62 35
"	17	Oil Cake	34809	"	2	"	5	J. A. Body & Co., Winnipeg.	6 00	5 42	32·38	6 04	9 36	40 90
"	17	Bran	34810	Geo. N. Gower, Victoria, B.C.	2	"	5	Columbia Flour Mills, Enderby, B.C.	8·65	6 38	15 13	2 07	7 08	60 69
"	17	Shorts	34811	"	2	"	5	"	8·35	4 44	15 13	1·81	6 48	62 79
"	17	Oil Cake	34812	"	2	"	5	Linseed Oil Mills, Winnipeg.	5 80	5 40	32 75	5 40	9 88	41 77
"	17	"	34813	Scott & Peden, Victoria, B.C.			5	"	7 25	5 06	29 75	3 47	11 54	42 93
"	17	Shorts	34814	"				Hall Milling Co., Lums-	8 55	3 60	15 13	1 61	9 52	61 59
"	17	Bran	34815	"	2				7 55	5 96	14 38	3 13	9 52	59 46
		Choice Ruby Chop		See File 34798					6 50	4 30	6 13	2 30	21 72	59 05

TABLE II.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

BRAN.

No. of Sample.	Moisture.	Ash.	Proteids.	Fat.	Fibre.	Carbohydrates, &c. (Difference).	Relative Value.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	*
[illegible]2	7·90	6·24	14·00	4·34	8·48	59·04	124
[illegible]	7·40	6·60	14·94	4·72	7·88	58·46	129
25677	8·00	6·10	14·94	3·60	10·04	57·32	125
26351	8·35	5·58	10·44	3·65	7·20	64·78	114
26353	7·87	5·58	14·87	3·93	6·64	61·11	128
27393	9·04	5·78	15·75	3·26	8·80	57·37	126
27396	8·75	6·36	14·00	3·45	8·92	58·52	121
27397	7·95	6·30	14·06	3·49	8·40	59·80	123
27903	8·35	6·00	15·31	3·21	6·88	60·25	113
28859	9·25	4·70	13·56	3·39	7·80	61·30	122
28863	7·15	5·28	15·31	4·85	10·12	57·29	128
28865	7·75	4·10	14·06	4·13	7·08	62·88	128
29594	9·05	6·50	14·44	1·66	14·24	54·11	115
31531	8·20	5·64	16·25	4·64	9·36	56·51	129
31180	6·50	5·70	12·25	1·70	9·28	64·57	116
32197	9·20	5·10	17·41	3·36	8·68	56·25	132
32181	9·65	5·72	14·87	2·87	8·64	[illegible]	123
32487	7·60	6·18	15·69	4·24	7·36	58·93	131
32490	8·25	6·20	15·25	5·64	6·26	58·40	130
32493	7·90	5·58	14·50	4·66	7·48	59·88	126
32496	8·70	5·60	15·48	4·02	6·92	59·28	129
33369	9·76	6·16	15·12	2·39	13·25	53·32	119
34112	9·00	5·24	14·69	2·80	13·64	54·63	119
34806	8·35	4·44	15·75	1·83	7·28	62·35	130
34810	8·65	6·38	15·13	2·07	7·08	60·69	126
34815	7·55	5·96	14·38	3·13	9·52	59·46	123
35017	8·25	5·80	15·56	3·71	7·48	59·20	129
Means	8·31	5·73	14·74	3·48	8·69	59·15	126

* For explanation of the relative value see page 8.

TABLE III.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

SHORTS.

Number of Sample.	Moisture.	Ash.	Proteids.	Fat.	Fibre.	Carbohydrates, &c. (difference).	Relative value.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	*
25663	6·55	4·10	17·06	3·37	7·60	61·32	**136**
25674	8·00	2·48	16·38	5·28	7·72	60·14	**136**
25675	7·00	4·62	17·25	5·52	6·44	59·17	**139**
25676	7·55	4·18	15·31	4·57	5·36	63·03	**133**
26349	8·60	4·76	17·58	4·32	5·64	59·10	**137**
26352	7·90	4·40	17·50	4·98	7·72	57·50	**137**
27904	8·70	4·92	18·38	3·54	7·08	57·38	**138**
27908	6·65	4·58	18·10	4·47	8·84	57·36	**139**
28858	9·10	[illegible]·20	18·68	5·22	10·24	53·56	**139**
28860	8·80	2·96	14·79	3·64	6·32	63·49	**131**
28861	9·70	3·14	18·32	3·18	8·88	56·78	**136**
28862	9·30	2·98	16·88	3·10	8·00	59·74	**134**
28864	8·25	4·08	14·19	4·67	7·84	60·97	**127**
29596	9·15	4·10	10·44	4·97	7·12	64·22	**116**
31529	7·60	4·26	16·81	5·60	6·80	58·93	**138**
31537	7·65	3·84	16·81	5·31	7·64	58·75	**137**
32180	8·80	3·64	17·41	3·36	8·68	58·11	**134**
32182	9·30	4·54	16·19	4·86	6·64	58·47	**133**
32489	7·55	4·00	17·31	5·41	5·92	59·81	**139**
32492	6·95	4·38	18·56	5·45	6·22	58·44	**144**
32494	7·70	3·82	15·50	5·02	7·28	60·68	**133**
32495	7·95	3·96	17·25	5·53	6·92	58·35	**138**
33370	9·08	3·40	15·21	3·42	8·60	60·29	**128**
33485	9·12	4·68	15·69	3·53	5·28	61·70	**132**
34109	8·40	4·30	17·00	3·08	7·68	59·54	**134**
34114	7·65	4·64	16·22	5·35	5·96	60·18	**136**
34807	8·15	2·82	15·81	2·65	8·36	62·21	**131**
34811	8·35	4·44	15·13	1·81	6·48	63·79	**128**
34814	8·55	3·60	15·13	1·61	9·52	61·59	**126**
Mean	[illegible]	3·96	16·44	4·23	7·33	59·81	**134**

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* For [illegible] the [illegible] value see page 8.

TABLE IV—CONCENTRATED COMMERCIAL FEEDING STUFFS.

MIDDLINGS.

No. of Sample.	Moisture.	Ash.	Proteids.	Fat.	Fibre.	Carbohydrates, &c. (Difference).	Relative value.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	*
26348	7·90	4·16	16·12	2·60	6·24	62·98	**133**
27306	5·96	4·22	13·81	3·64	5·90	66·47	**130**
29597	8·40	4·42	17·94	3·60	9·00	56·64	**135**
29600	8·36	4·18	12·94	3·89	6·90	63·73	**123**
31176	6·05	4·50	16·81	2·87	9·68	60·09	**134**
33486	8·55	6·08	17·50	2·36	14·40	51·11	**125**
33487	8·00	6·06	17·50	2·36	14·40	51·68	**126**
Means	7·60	4·80	16·09	3·05	9·50	58·96	**129**

* For explanation of the relative value see page 8.

TABLE V—CONCENTRATED COMMERCIAL FEEDING STUFFS.

CHOP FEED (MOULÉE).

No of Sample.	Moisture.	Ash.	Proteids.	Fat.	Fibre.	Carbohydrates, &c. (Difference).	Relative value.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	*
26347	9·00	2·10	15·48	3·08	1·08	69·26	**137**
27398	8·85	2·32	15·50	3·99	1·84	67·50	**137**
27399	8·50	4·36	15·75	3·42	5·64	62·33	**132**
27400	9·16	1·76	10·77	3·39	5·85	69·07	**119**
27905	8·75	4·20	20·50	3·53	5·52	57·50	**147**
27909	7·30	3·36	11·58	2·58	10·08	65·10	**117**
28856	9·00	3·90	11·37	1·20	9·88	64·65	**112**
28857	8·55	3·16	9·62	2·49	9·56	66·62	**110**
29595	9·25	1·36	8·84	1·91	11·60	67·64	**107**
29599	10·30	1·08	8·75	3·58	4·32	71·97	**114**
29601	10·16	2·40	9·56	2·44	7·00	68·44	**112**
29603	10·40	2·72	10·94	1·80	18·16	55·98	**103**
31177	7·60	2·20	14·50	1·60	5·12	68·98	**130**
31178	7·45	2·26	7·69	2·31	9·72	70·57	**106**
31181	8·10	1·82	10·94	3·42	5·08	70·64	**121**
31530	8·30	2·90	20·41	2·26	8·88	57·25	**143**
31534	7·70	3·14	10·06	4·86	7·08	67·16	**117**
31538	8·40	2·02	13·31	1·96	3·12	71·19	**128**
32177	9·00	3·32	8·66	3·15	7·92	70·95	**112**
32183	9·80	2·36	10·25	3·08	3·40	71·11	**118**
32184	10·00	2·30	10·06	2·20	8·72	66·72	**111**
32185	9·50	1·84	14·26	1·90	3·38	69·12	**129**
32186	9·00	2·66	9·71	3·84	12·20	62·59	**110**
33365	9·50	1·38	8·31	1·82	3·72	75·27	**112**
34110	8·20	2·34	8·69	2·60	9·32	68·85	**109**
34111	8·80	3·22	10·74	4·96	9·16	63·12	**116**
34113	8·00	4·00	7·87	1·60	10·16	68·37	**103**
Special	6·50	4·30	6·13	2·30	21·72	59·05	**88**
Means	8·75	2·67	11·44	2·79	7·80	66·68	**118**

* For explanation of the relative value see page 8.

TABLE VI.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

MEAL OR OIL CAKE MEAL.

Number of Sample.	Moisture.	Ash.	Proteids.	Fat.	Fibre.	Carbohydrates, &c. (Difference).	Relative value.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	*
25678	5·90	5·84	31·63	4·58	7·84	44·21	**180**
25679	4·65	3·94	19·69	14·59	7·16	50·97	**159**
26350	7·15	5·30	35·87	5·57	4·92	41·19	**196**
27907	6·10	5·54	34·38	4·66	7·88	41·44	**188**
27934	8·65	5·22	37·88	1·83	7·72	38·70	**194**
29598	7·75	5·20	31·94	2·65	6·68	45·78	**179**
29602	5·55	4·66	39·19	5·17	18·44	26·99	**194**
30457	7·55	5·26	35·00	2·69	12·04	37·46	**183**
31175	7·75	4·92	35·70	1·73	7·28	42·62	**189**
31184	7·60	4·96	36·56	2·04	11·64	37·20	**188**
31532	2·62	3·48	24·06	9·62	9·08	51·14	**167**
31533	7·05	5·40	35·87	5·47	5·96	40·25	**194**
31536	6·80	5·18	33·94	5·84	6·20	42·04	**189**
32178	6·80	5·64	36·22	4·88	9·80	36·66	**192**
32488	6·85	5·30	38·75	5·71	6·04	37·35	**203**
32491	6·25	5·40	35·71	5·87	5·12	41·65	**197**
33361	7·15	5·50	36·38	1·65	9·52	29·80	**188**
33363	3·50	3·28	23·37	24·14	7·04	38·67	**180**
33364	3·15	3·88	26·06	14·57	5·60	46·74	**180**
33368	4·68	1·80	21·50	9·87	7·50	54·68	**163**
34107	7·75	5·30	35·63	6·45	6·28	38·59	**194**
34805	6·95	5·92	35·81	5·53	9·28	36·51	**190**
34809	6·00	5·42	32·38	6·04	9·36	40·80	**182**
34812	5·80	5·40	32·75	5·40	9·88	40·77	**182**
34813	7·25	5·06	29·75	3·47	11·54	42·93	**168**
35014	4·00	3·82	23·63	15·12	6·76	46·67	**172**
35015	4·00	6·04	24·06	11·08	7·88	46·94	**165**
Means	6·12	4·91	31·23	6·89	8·31	42·17	**185**

* For explanation of the relative value see page 8.

TABLE VII—CONCENTRATED COMMERCIAL FEEDING STUFFS.

MISCELLANEOUS.

No. of Sample.	Name.	Moisture.	Ash.	Proteids.	Fat.	Fibre.	Carbohydrates, &c. (Difference).	Relative value.	Remarks.
		p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
26344	Bird Seed	.....	.....	.....	.....	.....	.....	.....	Whole seed, not analyzed.
26345	"	.....	.....	.....	.....	.....	.....	.....	" "
26346	"	.....	.....	.....	.....	.....	.....	.....	" "
27906	Victor Brand	6·80	3·40	7·50	5·52	12·92	63·88	165	Compare with Table V. Se also Nos. 27121 and 2846 of Bulletin 116.
30440	Bibby's	6·20	5·38	14·25	6·16	5·04	62·97	132	Compare with Table V. See also No. 28469 of Bulletin 116.
33362	"	6·20	5·46	14·25	7·08	7·16	59·85	131	
30459	Twin City	7·50	7·82	18·09	1·41	3·44	61·74	137	Compare with Table V.
31179	Molac	5·25	5·28	15·38	5·23	7·48	61·38	133	Very unequal values in these two samples.
31182	"	7·20	6·20	9·44	3·36	11·28	62·52	107	
33367	Calf Meal	7·64	4·58	26·25	2·21	4·50	54·82	164	
35018	National Stock Food	6·80	6·32	11·81	3·04	9·60	62·43	116	
27901	Anglo Saxon	6·65	11·76	14·00	9·63	13·00	44·96	120	Contains 5·24 per cent common salt.
30447	Herbageum	7·30	16·50	23·00	5·82	8·48	38·90	144	Contains 13·12 per cent common salt.
34106	"	6·70	15·26	22·31	6·22	7·80	41·71	143	Contains 10·15 per cent common salt.
27902	"	6·75	13·30	22·50	6·41	6·78	44·26	147	Contains 10·60 per cent of common salt. Is rather a condition powder than a regular feed. Other "Herbageum" products are Nos. 24136, 24788, 29201 of Bulletin 116 and 28052 of Bulletin 117.
25671	Carnafac	6·90	9·20	17·50	6·38	52·76	7·26	90	Of little food value; a condition powder. Other carnafac products are Nos. 28535 and 25710 of Bulletin 116, and 24792 and 28479 of Bulletin 117.
30453	Hess	6·25	32·84	10·94	4·47	8·60	36·90	90	Contains about 25 per cent of common salt. Is rather a condition powder than a food. Other samples of Hess products are Nos. 28471 and 25715 of Bulletin 116.
30454	Pratt's	6·00	10·50	15·31	4·80	6·72	56·67	128	Contains 7·24 per cent common salt. Is a condition powder rather than a food. For other Pratt products, see Bulletin 116, No. 28459 and Bulletin 117, Nos. 26857 and 28473.
31183	Molascuit	10·30	20·40	4·90	2·50	6·56	55·34	80	Contains 4·48 per cent of common salt. Is of little value as a food, but may have medicinal properties.

TABLE VII—CONCENTRATED COMMERCIAL FEEDING STUFFS—*Con.*

MISCELLANEOUS—*Concluded.*

No. of Sample.	Name.	Moisture.	Ash.	Proteids.	Fat.	Fibre.	Carbohydrates, &c. (difference).	Relative value.	Remarks.
		p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
33366	Dietic............	7·95	14·68	19·88	1·61	5·72	50·14	133	Contains 7·19 per cent of common salt.
34105	International........	6·70	14·74	12·44	3·38	8·16	54·58	111	Contains about 14 per cent of common salt. For other International products, see Nos. 27114, 24121, 29055, 26068, 26856, 28470, 28571, 25711 and 28042 of Bulletin 116; also Nos. 28480 and 28482 of Bulletin 117.
34108	Canada Stock Food.	7·20	11·40	16·13	7·12	9·04	49·11	128	Contains 6·92 per cent of common salt.
35013	Herb Food.........	6·50	13·06	19·06	4·10	8·72	48·56	133	" "
35016	Meat Meal	4·80	27·48	48·44	7·88	8·44	2·96	212	Contains 12·06 per cent of common salt.